KEEPING EGGS

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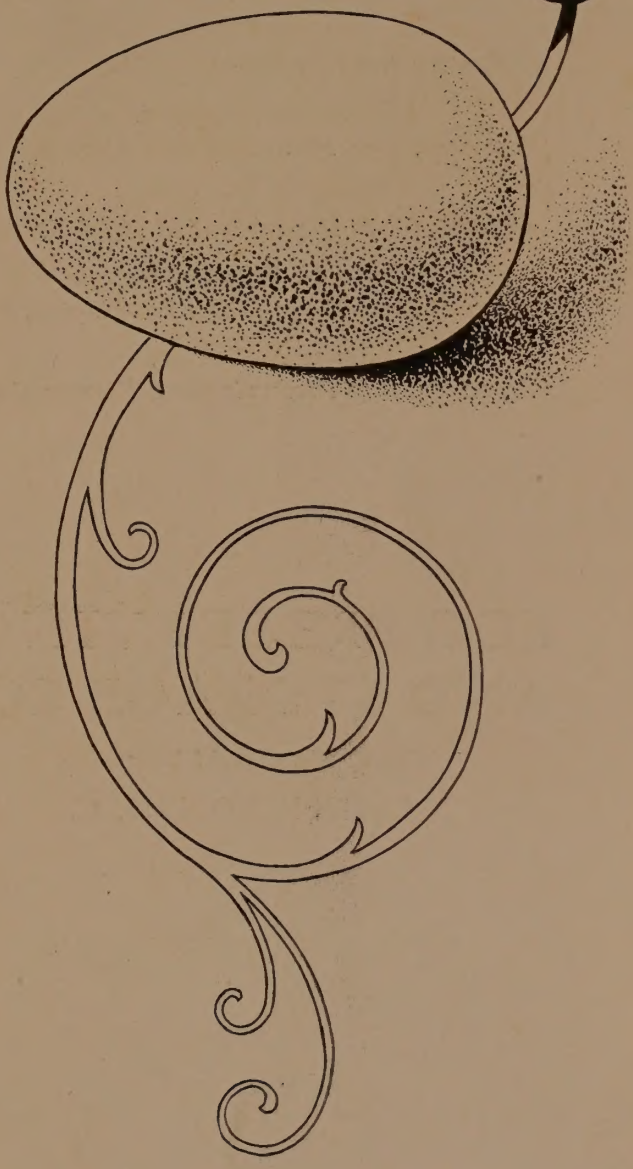

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EGG PRESERVING AND STORAGE CO.

WOODWARD BUILDING
WASHINGTON, D. C.

THE EGG PROBLEM

The annual production of eggs has an official estimated value of over $700,000,000. In the home of the American family the egg constitutes a basic food. But it is safe to assert that no other industry is more neglected.

Except on the well-managed poultry farm, the production of eggs is an incidental activity on the average farm. In fact, the egg crop of the small farm is regarded merely as a source of supply of a large proportion of what might be called the "ready spending money" of the farm woman. The local merchant pays the farm wife for her eggs generally in merchandise. The country storekeeper similarly regards the eggs as money and deposits them with the local egg collector or shipper, who turns back the cash to the storekeeper. From the farm on up through the various agencies through which the egg passes on its trip to the table of the consumer, a great loss occurs, through neglect, in the handling of this highly important food product.

Eggs do not stay good as long as they are in the country and suddenly become bad when they come to town. An egg is full of original sin from the moment it is laid and asks only for a little leisure in a warm place to indulge in all its proclivities for deterioration. It is apparent, therefore, that if the egg is to be palatable to the consumer proper care in its handling must begin on the farm.

As a result of the present methods of handling eggs the farmers, commission merchants, retailers and consumers annually suffer a loss approximating in money $56,000,000. These figures are astounding, but are based upon official estimates.

EGG STRUCTURE

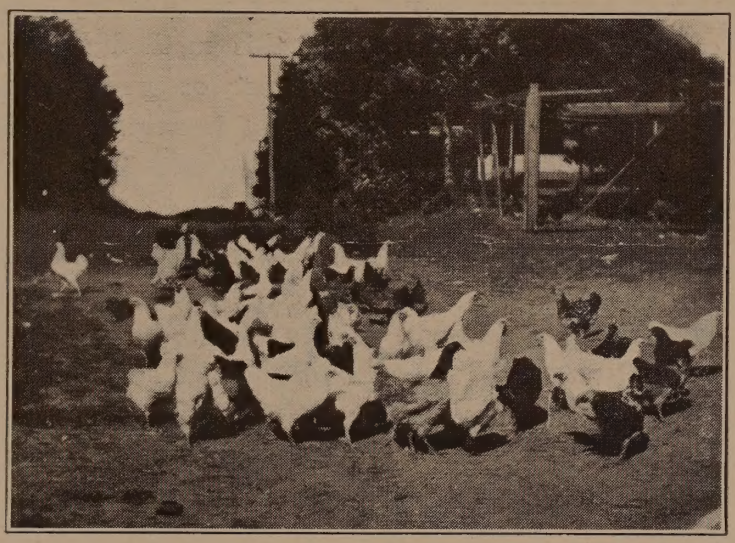
In order to appreciate fully the care necessary in preserving eggs, something should be known of their structure, keeping qualities, and some of the common causes of spoiled, or bad eggs. Most eggs when laid contain few or no bacteria that would cause decomposition, and the entrance of these micro-organisms usually takes place because of carelessness or neglect on the part of those handling the eggs.

Eggs, like milk, make an excellent place for bacterial growth and development and they spoil very rapidly when kept in a dirty or unsanitary place. The shell of the egg is porous to admit the passage of air in and out, but it is coated with a mucilaginous matter which prevents the entrance of bacteria unless it is very old, wet, softened by moisture, or rubbed off. Therefore, eggs should not be washed, held in damp, musty places, or handled more than necessary, but should be marketed or *PRESERVED* as soon after laying as possible.

Bacterial development or decomposition can be prevented in two general ways: first, by keeping the eggs sterile by preventing the entrance of bacteria; second, by retarding the growth or development of bacteria either by shutting off the supply

of oxygen by coating the shell or immersing it in a liquid, or by lowering the temperature below the point at which the growth or development will take place, which is commonly called cold storage.

The quality of the egg is also seriously affected by the loss of moisture through evaporation. In the storage of eggs, there are then two main factors to be considered: (1) To prevent decomposition caused by the growth or development of bacteria or mould; and (2) to avoid loss of moisture by evaporation.



METHODS OF PRESERVATION

The cold storage method is practicable only where eggs and other products are handled on a large scale. This method is quite successful if the temperature is held at, or slightly above, the freezing point (33° to 35° F.) and the humidity of the storage room 75° to 80° to prevent evaporation. Because of the expenses and equipment necessary this method cannot be considered for the preservation of eggs in the home or upon a comparatively small scale.

A METHOD FOR THE HOME OF THE FARMER, THE HOSPITAL, THE HOTEL, AND THE HOUSEHOLDER MUST BE SIM-

PLE, CHEAP, AND MUST RETAIN THE GOOD QUALITY OF THE EGG WITH FEW, IF ANY, LOSSES.

J. H. Thieriot, in U. S. Consular Reports, December, 1897, pp. 563, reports that out of 20 methods experimented with in Germany the three that gave the most satisfactory results were water glass, limewater, and coating the eggs with vaseline.

Of these three methods, varnishing with vaseline must be dismissed from consideration because of the time and expense involved in this process. The use of limewater is not entirely satisfactory because the egg preserved by this method has a noticeable lime taste. The cost of preserving eggs by the water glass method is neglible and there is no discernible effect upon the taste of the eggs.

The eggs should be fresh and clean. When an egg is only slightly soiled, a cloth dampened with vinegar can be used to remove the stains. *Under no circumstances should badly soiled or cracked eggs be used for preserving; if put into a container while dirty they will spoil and washing removes the protective coating which prevents spoiling.*

The preserving of eggs from the spring when they are plentiful until fall and winter when they are scarce is by no means a new practice. Only a very few, however, are taking advantage of this practice and the full benefits are by no means being derived. During the winter the seemingly exorbitant prices asked for eggs brings out very forcibly this fact in some of the rural districts as well as in the larger cities where the price for a considerable time hovers about $1.00 per dozen.

Experiments conducted by the State Experiment Stations and the Federal Department of Agriculture have demonstrated beyond doubt that the most efficient method of preserving eggs is by the use of water glass properly used in solution in accord-

ance with the recommendations of the scientific laboratories making the tests.

WATER GLASS (Sodium Silicate)

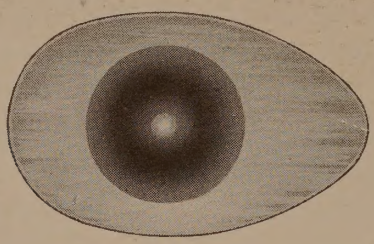
Water glass is a very cheap product that can be procured usually at not to exceed 50 cents a gallon, and 1 gallon will make enough solution to preserve 30 dozen eggs, so that the cost of material does not exceed 1 2/3 cents per dozen. It is a pale yellow, odorless, sirupy liquid. It should be diluted in the proportion of 1 part of water glass to 9 parts of water which has been boiled and allowed to cool. The eggs should not be washed before packing, for washing injures the keeping quality by dissolving the mucilaginous coating. Eggs have been kept satisfactorily by this method for a year or longer. If properly handled, they will keep for four weeks after being removed from the solution.

OBJECTION TO PRESENT METHOD

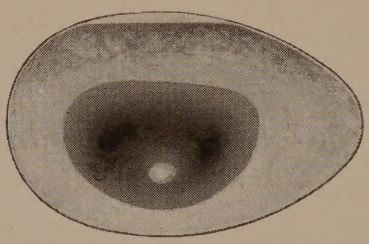
The practice heretofore followed in the use of the water glass method of preservation has been to place the eggs in a crock or glazed container and submerge them in the solution.

Although the contents of the eggs are preserved, a very objectionable result in the physical structure of the egg naturally follows. When the egg is permitted to remain in a state of rest for even a comparatively short time, the yolk, of its own weight, begins to settle and eventually breaks its sustaining tissue and intermingles with the white, or adheres to the shell. This condition unfits the egg for table and many cooking purposes.

The official photographs below show the change in the physical structure of the egg which takes place when the egg is allowed to stand in a constant position.



Sectional view of a fresh egg less than 48 hours old. This egg is proper food for any purpose to which eggs may be applied.

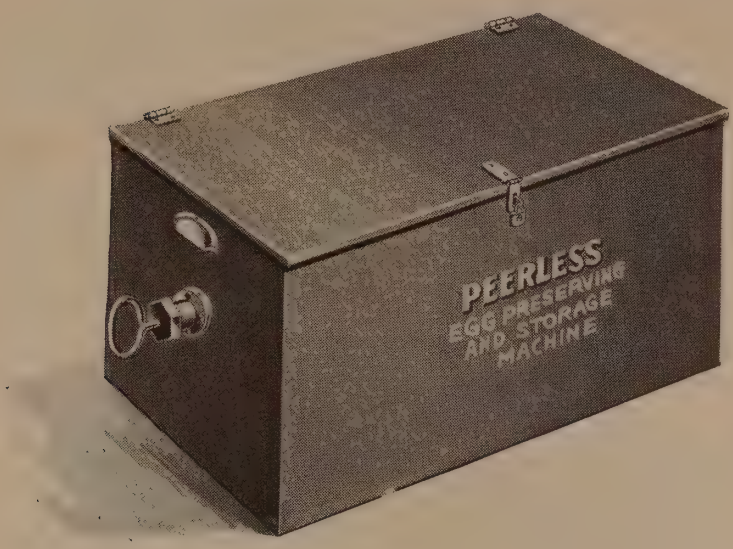


This is a sectional view of an egg 21 days old in a state of rest. The egg is no longer fit for food.

BY THE USE OF THE PEERLESS EGG STORAGE AND PRESERVING MACHINE THIS OBJECTION IS OVERCOME, AND THUS BY USING THE WATER GLASS

PRESERVATIVE IN THE MACHINE THE EGGS ARE PRESERVED IN A PERFECT CHEMICAL AND PHYSICAL STATE.

The machine is an easily operated apparatus which permits the partial turning of the eggs in the preserving liquid at regular intervals, thus keeping the yolks from leaving their normal position in the center of the shell, irrespective of the length of time the eggs remain in the machine.



Perspective view of the Peerless Egg Preserving and Storage Company Machine (30 dozen).

In a variety of sizes. Capacity from 30 to 300 dozen eggs each. Larger sizes on orders.

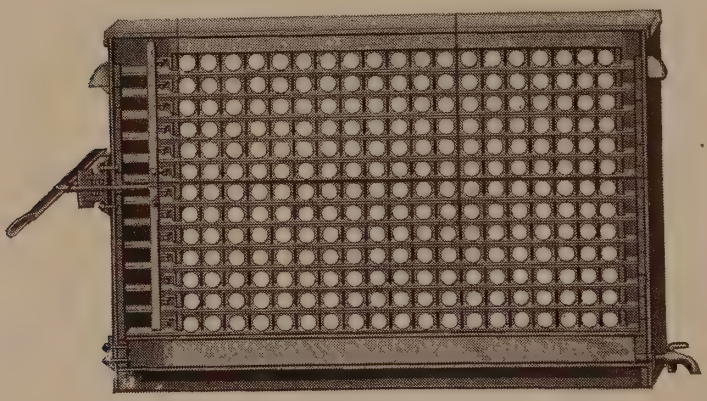
OPERATION OF MACHINE

The machine is composed of a water-tight metal container, in which a series of slidable trays are placed on crimped metal plates. The slidable trays are attached to a vertical rod operating within the box and moved forward and backward by means of a lever or handle operating on the outside of the box. The eggs are placed in the trays and submerged in the water glass solution. At intervals of 10 days the mere movement of the operating lever rolls the eggs and the "point of rest" of the yolk is changed in time to prevent the breaking of the yolk-sustaining tissue.

Sectional view of the Peerless Egg Preserving and Storage Machine (30 dozen).

Eggs may be collected or bought in small lots and placed in the machine as desired until the machine is filled. It is only necessary to add a tray and cover the eggs placed therein with the solution.

When it is desired to remove any or all of the eggs preserved, the liquid is withdrawn through a faucet at the base of the machine, thereby reducing the liquid to a desired level to permit the easy removal of the eggs.



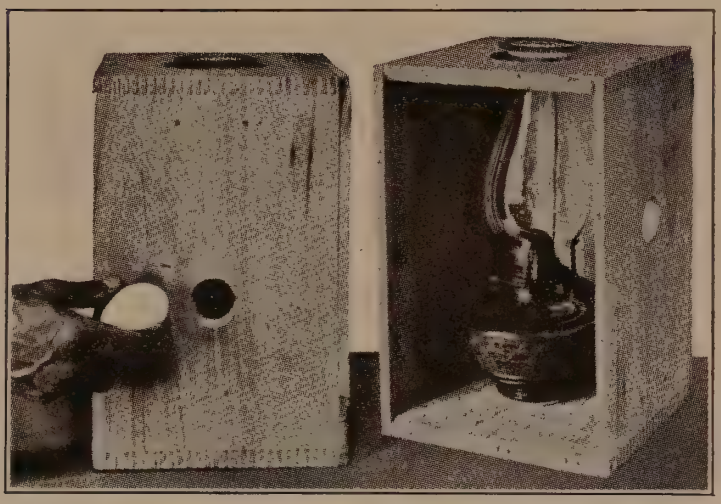
Side View of Larger Size Peerless Egg Preserving and Storage Machine. This view shows position of the eggs while in the machine.

The machine affords a clean, sanitary container for the eggs; its operation is remarkably simple; and in point of durability should last for ten years under ordinary treatment. Using this machine it should never be necessary to touch the liquid, and the only requirement to preserve the eggs in a perfect state is a proper proportionment of the solution and the periodical operation of the lever which partially turns the eggs in the solution.

SELECTION OF EGGS FOR PRESERVATION

No amount of careful handling or preservation can restore a "bad" egg. It is important, therefore, that only fresh eggs be placed in the machine. The one way to tell about the contents of an unbroken egg is to hold it before the light, or by the process known as "candling," and wherever there is any doubt as to the true condition of the egg it is important that this test be made.

For this purpose any simple device may be used whereby it is possible to hold the egg before a concentrated light, as, for example, inclosing a light within a box, in one side of which there is a single hole the size of a half dollar. The test should be made in a darkened room. The condition of the egg is revealed with almost photographic clearness. The fresh egg will show a distinctive pinkish glow.



An easily constructed egg candler. The hole for testing eggs should be directly opposite the flame of the lamp.

A simple method of candling is described in Department of Agriculture Circular 15, as follows:

"Eggs can be candled best in a dark room, using a bright light inclosed in a box or case having a hole a trifle smaller than an egg directly opposite the light. At this hole the egg is held for examination. An ordinary hand lamp, a lantern, an incandescent bulb, or a flashlight may be used. Any box set on end, that is large enough to hold the lamp, will do. In addition to

the hole opposite the light there should be a hole at the top of the box (see illustration); otherwise the heat from the top of the chimney would set the box on fire. A tester chimney made out of tin such as is used on a lamp for testing eggs in incubators may be used for candling. When such a chimney is available the box is not necessary, as the eggs are tested by means of the hole in the side of the chimney.

"The box and light should be placed on a table or shelf where most convenient. Place on one side the eggs that are to be candled and on the other side have separate boxes (or anything that will hold the eggs) for the good and bad eggs. Hold the eggs, one by one, large end up, close to the light.

"A perfectly good fresh egg shows 'full' and 'clear' before the light. There is almost no air cell at the large end and the yolk outline is only faintly visible. A fixed air cell of one-eighth to three-sixteenths inch in depth indicates a fresh egg as eggs run generally. A larger air cell with a movable lower line indicates—according to sizes and fluctuations—a stale egg or one becoming weak and watery.

"Very small, dark spots which sometimes may be seen are usually blood clots. Large, dark spots, blood rings, and shadows are due to heat and germination and indicate the first stages of decay. An egg that looks very dark or black, except for a large fixed air cell, contains a chick at an advanced stage of incubation. An egg which looks dark when tested in the same way but shows a large air cell with a movable lower line is usually in an advanced stage of fluid decomposition, or what is commonly known as a 'rotten egg.'"

VALUE OF MACHINE

The imperative need of satisfactory means of eliminating the enormous present annual waste of eggs in the United States is evidenced by the following letter:

(Copy) United States Food Administration,
Washington, D. C., January 27, 1919.
In your reply refer to 12-H-3.

Egg Preserving and Storage Co.,
Woodward Bldg., Washington, D. C.

Gentlemen:

I am much interested in your Egg Preserving and Storage Machine because my work for the past year and a half has given me deep realization of the importance of anything that will in any way help preserve food in any form. One of the most perishable and important articles of food in this country is eggs and the losses sustained in marketing this product in the past have unfortunately been very heavy and, consequently, very wasteful. Any device to economically preserve eggs in a fresh state is highly desirable and would help to reduce the high cost of living.

I hope that you will be able to get it in proper condition for distribution at an early date.

Faithfully yours,
U. S. FOOD ADMINISTRATION,
Educational Division,
BEN. A. ALLEN, Director.
(Signed) T. A. ELLIS.

In the interest of fair prices and in effectually reducing the present enormous loss in the use and marketing of eggs, the PEERLESS EGG PRESERVING AND STORAGE MACHINE should be in every household, hospital, asylum, school, hotel and boarding house. The processes combined in the use of this machine give the nearest approach to a perfectly fresh egg, and the machine will pay for itself in one season's use. Its use either under a community coöperative plan or by the individual will do much to preserve eggs in their original purity and solve the present problem of preventing the hoarding of this staple product by the big storage plants.

The following figures are of interest in proof of the great need and economic value of the PEERLESS EGG PRESERVING AND STORAGE MACHINE.

Taking the State of Maryland as an egg-producing state, in comparison with forty-seven other states, and taking the U. S. Department of Agriculture statistics of the sale of eggs (see page 670, Yearbook, 1916) the wholesale prices per dozen for eggs were as follows (see page 678, Yearbook, 1916): For April, 19 cents; May, 19 cents; June, 20 cents; July, 21 cents; August, 22 cents; September, 26 cents; October, 33 cents; November, 34 cents; December, 42 cents.

There were marketed in the State of Maryland during the year 1916 about 43,064,190 dozen eggs.

If all the eggs produced during April, May and June (being over 75 per cent of all the eggs produced during the entire year) could have been preserved during this period and held for winter use, the consumers would have saved a difference in price of 20 cents per dozen, or a total of $8,612,830.

The above figures apply to the State of Maryland, which is about the twelfth state in productive capacity.

The common size (30 dozen) PEERLESS EGG PRESERVING AND STORAGE MACHINE is

14 inches high, 13 inches wide, and 24 inches long. The machine may be constructed to any capacity. It is entirely practicable for army and other field uses since it may be shipped as an ordinary packing case.

Eggs Stored Without Waste by Consumers When Eggs Are Cheap to Use in the Season of Scarcity. Less Eggs to Go to Terminal Markets in Hot Weather When Unavoidable Losses in Handling Are Heaviest.

MORE FRESH EGGS AVAILABLE FOR CONSUMERS IN FALL AND WINTER.

Producers and Consumers Co-operating for the Common Good.

CONSERVE EGGS. STABILIZE PRICES. EQUALIZE DISTRIBUTION.

OFFICE TELEPHONE
MAIN 5359

RESIDENCE TELEPHONE
NORTH 9368

GEORGE G. SCHROEDER
634 WOODWARD BUILDING
WASHINGTON, D. C.

March 20th, 1920.

Theo. Leonhardt & Son,
Philadelphia,
Pennsylvania.

Gentlemen:

I received your letter of February 5th, 1920, in which you refer to enclosed blank stock certificates. I failed to find the certificates enclosed. I do not wish to put your house to unnecessary trouble, but do wish to get a design worked into a certificate will give an idea of the company business.

I enclose a prospectus of Egg Preserving and Storage Co. for which I wish to get certificates. It may not be the same name, but it is intended for the same purpose, preserving and storing Eggs.

Thanking you in advance, for a reply, I remain

Yours very truly,

G G Schroeder